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have inquired for twenty years for the familiar eastern *Erechthites hieracifolius*, but no botanist or farmer had ever seen it in this State. Two years ago Dr. Lapham asserted that it had never reached Wisconsin. A week afterwards I discovered it for the first time in a door-yard adjoining my office. A few days later I found it in considerable abundance along the Wisconsin Central R. R., north of Steven's Point.

A friend just informs me that he has found the *Lobelia siphilitica* perfectly white, growing with the blue. Is this a new departure?"

**SOME VARIATIONS.**—There are some strange varieties of a few plants growing in this vicinity, which I thought might prove to be interesting to the readers of the BOTANICAL BULLETIN. *Caltha palustris*, L., found flowering in meadows from the latter part of March to May, varies in its flower considerably. The sepals, not unfrequently, instead of numbering 5 to 9, as descriptions in books state, become as numerous as 13 to 15 and less than half as wide as usual and spatulate in form. I collected a remarkable flower of this plant, several years ago, in which the sepals, 13 in number, are disposed in two whorls. The lower whorl is about half an inch beneath the upper, consists of 10 sepals, spatulate, generally entire, a few triply crenate at their somewhat widened apex, and the venation closer than usual. The apex of the peduncle, bearing the stamens and pistils, is surrounded by two small and one large sepal. Probably this form is merely a monstrosity, yet it is interesting to note the tendency in this plant to produce a greater number of sepals than is noted in botanical works. I have not collected any of the above forms in seed, therefore am unable to state whether further variation might be found in the follicles and seed.

*Camptosorus rhizophyllus*, Link., is one of our most interesting and abundant ferns, growing luxuriantly on damp shaded limestone rocks. The auricles of the fronds vary in shape considerably; in some forms almost absent, with scarcely an enlarged base, to largely auricled and hastate, the slender prolongation growing from the latter forms often rooting and producing new plants. The frond is sometimes found bifid, the divisions spreading at about half its length, each portion bearing a midrib and terminating in a very slender apex. I have found some plants bearing sori, in which the frond is remarkably short, oblong, obtuse, widening at the base into obtuse auricles. Again I have another form in which the auricles are so deeply cleft from the main frond, as nearly to form three distinct divisions.—E. A. RAU, *Bethlehem, Pa.*

**BOTANY OF THE GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.**—The Regents of the University of Minnesota have taken action ordering the commencement of a thorough and systematic examination of the flora of the State. To facilitate such an examination Prof. N. H. Winchell, chief of the Survey, has issued a circular letter to the botanists of the state, giving them directions how to proceed to work systematically. As Minnesota is beyond the range of ordinary text books, the books necessary for working up the flora are expensive and some of them hard to get, and of course by centralizing all their forces at the University, a much greater and more satisfactory kind of work can be done. Such a survey ought to be ordered in every State. There are geological surveys enough to work up every corner of every state, but botanical observations on any part of a state must creep in by special favor. Our public spirited legislators, who can see the point of voting appropriations for opening up their coal fields and iron regions, have not been educated sufficiently yet to know the economic value of a good botanical survey or that a geological survey cannot be complete without it. But botanists *will* work whether they have appropriations or not, and though it is necessarily a slower process, the work will be done eventually, and may be all the better for its slow and careful progress.—ED.

**RECENT PERIODICALS.**—*American Journal of Science and Arts*, September. A pa-

per on "The Structure and Movements of the Leaves of *Dionæa muscipula*," by Casimir De Candolle, is reviewed by Dr. Gray. M. De Candolle, from a series of experiments, comes to the conclusion that animal matter is not necessary to the growth and strength of *Dionæa*. He further infers that the animal matter of the insects caught is not directly utilized by the leaves, a conclusion which Dr. Gray does not consider necessary. A new intoxicating grass from Mongolia is noticed. "It proves to be a new species of *Stipa*, brought from the Alachan mountains by a Roman Catholic Missionary, whose horses were disabled by its inebriating properties. The wandering Mongols of the region are familiar with this grass, and use vinegar as an antidote." M. Alph. De Candolle has caused a series of observations to be made in two old botanical gardens, in Paris and Pisa, to learn whether the age of a tree influences its time of leafing. The results do not show that there is any difference in this respect due to age.

*American Naturalist*, September. The doubtful species, *Schœnolirion album* Durand, referred to in the July number, has been rediscovered in Plumas County, California. *Sedum reflexum*, L., is reported to have established itself at Pigeon Cove, Essex County, Mass. A new Rocky Mountain fir is described by Lester F. Ward under the name of *Abies subalpina*, a provisional name given to the species by Dr. Engelmann as the "fir which occupies the highest wooded regions up to the limits of vegetation in the Rocky Mountains, from Colorado northward and westward to Oregon."

*Bulletin of the Torrey Botanical Club*, July and August. A large part of this double number is devoted to the notice and brief review of recent publications. An interesting letter from Mr. Hall, of Beirut, is given. Quite a number of additions and corrections are made to the Botanical Directory, Supplement, 1876.

*Home and School*, John P. Morton, Louisville, Ky., September. Mr. John Williamson presents his third paper upon "Studies in Nature and Art." Mr. W. has commenced operations in a new and very interesting field. He is both botanist and artist, and studying the beautiful forms suggested by flowers, works them into ornamental designs. In each paper he has presented a single species, gives a minute and popular description of it, accompanied by a wood cut, and then gives in another plate some idea of the ornamentations to be derived from it. In the August number he took up *Jeffersonia diphylla*, and in the present number *Hepatica triloba*. Mr. W. was kind enough to furnish us with an advanced sheet of the cut to be used in the October number. It is a very accurate drawing of that rare and beautiful fern *Trichomanes radicans*, made from growing specimens.

*Field and Forest*, Washington, D. C., September. The botanical articles are "Field Notes in New England," by J. W. Chickering, Jr., "Flora Columbiana," taking us to *Gentianaceæ*, and a note on the "Catalpa, or Cigar Tree," by S. S. Rathvon. This sprightly journal has recently doubled its size to sixteen pages and is well worth the subscription price, one dollar. Address Editor Field and Forest, P. O. Box 273, Washington, D. C.

**SOME RIVER BANK FLOWERS.**—One of the best botanical grounds in this region at the present season is the bank of the Ohio River. Every year the river overflows its banks and deposits not only a coating of rich alluvium, but also seeds brought from farther up stream and new to our flora. Nearly every season reveals something new, and although it is, of course, not equal to the ballast grounds of sea-port towns it is interesting in somewhat the same way. Through September the bank is very rankly overgrown and it is with great difficulty that one can force his way through the jungles of herbs that have assumed forest like proportions in this rich soil. It might be interesting to mention some few of the more striking plants noted in an afternoon's walk. To get to the river bank necessitates passing through a jungle of *Ambrosia trifida*, not eighteen feet, as noticed once before, but in some instances *twenty-two feet in height*. On coming to the beach we find it one continuous carpet of *Eragrostis*, principally *E. poaeoides*, var. *megastachya*

and *E. reptans*. Among it can be seen coming up now and then a stalk of the fragrant *Pluchea fœtida*, quite an abundance of *Heliophyllum Indicum*, plenty of *Conoclea multifida*, with leaves in whorls of three and purplish flowers, an occasional *Kyllingia pumila*, which grows in such abundance back from the river on what are known as "The Flats," huge specimens of *Eclipta procumbens* which look very much overgrown, and *Chenopods* of various species. In some parts of the bank where *Eragrostis* has not taken such a decided hold may be found growing large clumps of *Baptisia australis* and *Polanisia graveolens*, *Cuscuta Gronovii* growing over whatever it can, *Apocynum cannabinum* with its very long foliicles, *Artemisia biennis*, and *Polygonum dumetorum*. There is a wonderful growth of *Tecoma radicans* and *Phaseolus diversifolius*. These two species seem to be running a race to see which can cover the most bank in the shortest time. The latter grows partly on what may be called the beach, and in that situation holds full, undivided sway, but where the bank becomes abrupt and broken the fight commences. They have made a clean sweep of everything in the way. Poor *Ensenia albida*, that was blooming so abundantly there earlier in the season, was destroyed root and branch, not even being permitted to ripen pods and provide for a future generation. In some places the banks are yellow with *Helianthus doronicoides* growing from one foot to twelve and having as many specimens with alternate leaves as opposite. I can but mention the jungle like growth of *Polygonum Pennsylvanicum*, which rises fully six feet from the ground and is a very formidable obstacle in one's pathway. Its thick, bold-looking, upright spikes are placed in striking contrast with the lighter colored, gracefully drooping spikes of the more slender *P. incarnatum*. Then there is *Coreopsis trichosperma* and four species of *Bidens*, viz: *B. chrysanthemoides* from one inch to three feet, *B. frondosa*, *B. connata* and *B. bipinnata*; also *Montelia tamariscina*, *Ipomœa lucunosa* twining around everything, *Phelipœa Ludoviciana* under the shade of the huge *Ambrosia*, *Hibiscus militaris*, *Cyperus strigosus*, *phymatodes*, and probably *Michauxianus*, *Eupatorium perfoliatum* and *serotinum*, clumps of *Vilfa vaginæflora*, and patches of *Panicum capillare* to be waded through up to the breast. *Artemisia Abrotanum* is growing there in profusion.—ED.

It is with a feeling of regret that with this number we bid farewell to the BOTANICAL BULLETIN. The name has become so much associated with the paper that for a time the new name will sound strange, but we hope that the BOTANICAL GAZETTE will fulfill the mission of the BULLETIN in a much more satisfactory manner. Its increased size will permit a greater variety of articles than heretofore and papers of considerable length will be published in addition to the short notes that were necessary in so limited a space. It was with no thought of infringing upon the name of the *Bulletin of the Torrey Botanical Club*, that the name for volume first was selected, but as many have feared some confusion might arise, we have cheerfully withdrawn our claim and have selected a name which, we are assured by an accomplished scholar and botanist, "means about the same thing." We take this opportunity of expressing our warmest thanks to our friends and patrons, who have so promptly and cordially seconded our efforts. A paper in which not a line of advertisement appears to aid in its support needs to have a comparatively large subscription list, and it was with considerable trepidation that the undertaking was commenced. But the kind assurances of our friends have encouraged us to incur additional expense in the hope of giving subscribers a sheet of more satisfactory size, and one which can contain a greater variety of matter. With the last number of Vol. II a complete index to Vol. I and II will be issued and the pages of the two volumes will be numbered consecutively. With these words we place a completed volume of the BULLETIN in our readers' hands, and express the hope that in its new dress and enlarged capacity the GAZETTE will prove much more attractive and profitable to all interested in the study of botany.—ED.